



# DET NORSKE VERITAS

## TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. E-5239

This Certificate consists of 4 pages

*This is to certify that the*  
**Frequency Converter**

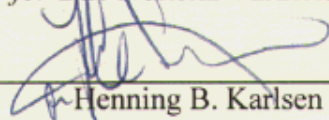
*with type designation(s)*  
**VLT 5000 series, VLT 6000 series**

*Manufactured by*  
**Danfoss Drives A/S**  
**Graasten, Denmark**

*is found to comply with*  
Det Norske Veritas' Rules for Classification of Ships and Mobile Offshore Units

*Application*  
Frequency Converter for Asynchronous Motors VLT5000 and 6000 series. Range: 0,75 kW  
to 37/45 kW - 200-240 / 380-460/500 VAC supply.

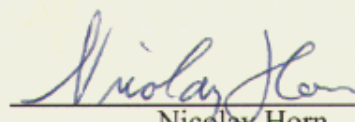
*Place and date*  
Høvik, 1999-09-23  
for DET NORSKE VERITAS AS

  
Henning B. Karlsen  
Head of Section



*Local Office*  
DNV Fredericia

*This Certificate is valid until*  
2003-06-30

  
Nicolay Horn  
Surveyor

Notice: This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



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## Product description

Variable speed controller for asynchronous motor. Constant / variable torque applications.

Type designation	Mains supply (V)	Motor rating (kW)
VLT <sup>®</sup> 5001	200-240 / 380-460/500	0,75
VLT <sup>®</sup> 5002/6002	200-240 / 380-460/500	1,1
VLT <sup>®</sup> 5003/6003	200-240 / 380-460/500	1,5
VLT <sup>®</sup> 5004/6004	200-240 / 380-460/500	2,2
VLT <sup>®</sup> 5005/6005	200-240 / 380-460/500	3,0
VLT <sup>®</sup> 5006/6006	200-240 / 380-460/500	4,0 <sup>++</sup>
VLT <sup>®</sup> 5008/6008	200-240 / 380-460/500	5,5
VLT <sup>®</sup> 5011/6011	200-240 / 380-460/500	7,5
VLT <sup>®</sup> 5016/6016/6022	200-240 / 380-460/500	11/11/15
VLT <sup>®</sup> 5022/6027	200-240 / 380-460/500	15/18,5
VLT <sup>®</sup> 5027/6032	200-240 / 380-460/500	18,5/22
VLT <sup>®</sup> 5032/6042	380 - 460/500	22/30
VLT <sup>®</sup> 5042/6052	380 - 460/500	30/37
VLT <sup>®</sup> 5052/6062	380 - 460/500	37/45

<sup>++</sup> : VLT5006/6006 (200-240V) : 3,7 kW

## Application/Limitation

Supply voltage range:	200-240, 380-500 V, 50/60 Hz
Voltage variation:	± 10 %
Frequency variation:	± 10 %
Output frequency:	0 – 1000 Hz.
Temperature range in operation:	0 – 40 °C
Temperature class:	A
Enclosure class:	A
Vibration class:	A





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The VLT5000/6000 must be regarded as a component. The actual installation to be designed according to Danfoss design guide MG50CX02 and according to DNV Rules Pt. 4 Ch.5.

The Type Approval covers hardware and software for the basic controller.

Clause for software control:

All changes in software are to be recorded. The records of all major changes are to be forwarded to DNV for evaluation and approval. Major changes in the software are to be approved before installed in the computer. Approval Test of Software may be required.

#### **Type Approval documentation**

Binder 1: Shipclassification DNV 175R0163  
Danfoss VLT5000/6000 series  
Binder 1 of 3 Testspecifications

Binder 2: Shipclassification DNV 175R0163  
Binder 2 of 3  
Testdocumentation  
Environmental and EMC

Binder 3: Shipclassification DNV 175R0163  
Binder 3 of 3  
VLT identification  
Schematics, componentlist etc.

#### **Tests carried out**

Visual inspection, Performance, Power supply failure, Power supply variations, Voltage/frequency variation. Vibration/shock. Dry heat. Damp heat. Insulation resistance, High voltage.  
EMC: Electrical fast transient (Burst), electrical slow transient (Surge), RF-common mode Voltage, radiated RF-electromagnetic fields. Electric discharge (ESD).

#### **Marking of product**

Danfoss – Type designation – Power - Voltage

#### **Certificate retention survey**

The scope of the retention/renewal survey is to verify that the conditions stipulated for the Type approval is complied with and that no alterations are made to the product design or choice of materials.



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The main elements of the survey are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Production Sample Tests (PST) and Routines (RT) checked (if not available tests according to PST and RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Survey to be performed at renewal only.

END OF CERTIFICATE